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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,607	07/14/2006	Leif Westin	61192	5461
23117 7590 02/18/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER VELASQUEZ, VANESSA T				
ART UNIT		PAPER NUMBER		
1793				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,607

Applicant(s)

WESTIN, LEIF

Examiner

Vanessa Velasquez

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 15, 16 and 22-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15, 16 and 22-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

Claims 1-12, 15, and 16 are currently amended. Claims 13, 14, and 17-21 are canceled. Claims 22-37 are newly added. Claims 1-12, 15, 16, and 22-37 are pending and presented for examination.

Status of Previous Objections

The previous objection to claim 2 for failing to include units is withdrawn in view of the amendment to the claim.

The previous objection to claim 9 for an improper multiple dependency is withdrawn in view of the amendment to the claim.

The previous objection to claim 16 for a spelling mistake is withdrawn in view of the amendment to the claim.

Status of Previous Rejections under 35 USC § 112, Second Paragraph

The previous rejection of claims 1-21 for reciting relative terms is withdrawn in view of the amendment to the claims.

The previous rejection of claim 2 for the term "M(N,C)" is withdrawn in view of the amendment to the claim.

The previous rejection of claims 3-8, 10-12, and 15 for reciting both broad and narrow limitations in the same claim is withdrawn in view of the amendments to the claims.

The previous rejection of claims 17-21 for reciting a method without positive method steps is moot in view of the canceled status of the claims.

Status of Previous Rejections under 35 USC § 101

The previous rejection of claims 17-21 for claiming an improper process is moot in view of the canceled status of the claims.

Duplicate Claim Warning

Applicant is advised that should claim 12 be found allowable, claim 31 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Objections

Claim 10 is objected to for what appears to be a typographical error. Upon amendment of the claim, it appears that the dash following the boundary "0.3" was inadvertently deleted. Currently, part of the claim reads "wherein it contains 0.3 1.0 Nb."

There is no dash to indicate a range. For the purposes of examination, the claim will be interpreted such that the steel contains 0.3-1.0 Nb.

Claim Rejections - 35 USC § 112, First Paragraph

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2, 11, 12, 30, and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Specifically, claim 2 recites that the microstructure of the steel after hardening and tempering “contains 3-6% by volume of tempered nitrogen martensite.” This appears to be at odds with the specification, wherein it is stated that 94-97% of the steel is nitrogen martensite. This percentage is quite larger than the claimed range. Claims 11, 12, 30, and 31 are likewise rejected for their dependency on rejected claim 2.

Claim Rejections - 35 USC § 112, Second Paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the claims recite ranges, but the ranges are not directed to any specific element. For the purposes of examination, the Examiner will presume that the ranges correspond to the chemical element that has been deleted in the claim.

Claim Interpretation

It is noted that claim 1 utilizes the transitional phrase "consisting of" in the preamble. "Consisting of" signifies closed language, i.e., it excludes any element, step or ingredient not specified in the claim. The Applicant is reminded that only the words immediately following this phrase are restricted to this closed-language interpretation. In the present case, the words that immediately follow "consists of" are "an alloy." Therefore, the steel will be interpreted as consisting of an alloy.

It should further be noted that the transitional phrase "containing," which is equivalent to "comprising," signifies open language. This means that additional elements, steps, or ingredients are not excluded from the claim. The claim limitations directly following the phrase "containing" are the chemical elements that make up the composition of the steel. Therefore, any prior art document that teaches elements not claimed may still be properly applied. See MPEP § 2111.02.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-12, 15, 16, and 22-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stein et al. (DE 4212966 A1, English abstract and machine translation) in view of Koga et al. (US 2002/0164260 A1).

Regarding claims 1, 3-8, 10, 22-27, and 29, Stein et al. teach a martensitic chromium steel possessing excellent resistance to corrosion in acidic and chloride solutions (abstract). The steel comprises the following elements in percent by weight (abstract):

Element	Claim 1	Dependent Claims [‡]	Dependent Claims [‡]	Stein et al.
C	0 - 0.12	0 - 0.11 (#3)	0.02 - 0.10 (#22)	0.005 - 0.5
N	0.5 - 1.5	0.7 - 1.2 (#4)	0.8 - 1.0 (#23)	0.2 - 1.0
Cr	12 - 18	12.5 - 17 (#5)	13 - 16 (#24)	14 - 18
Mn	0 - 0.5	0 - 0.4 (#6)	0 - 0.3 (#25)	0 - 1.0
Ni	0 - 0.5	0 - 0.4 (#7)	0 - 0.3 (#26)	0.3 - 2
Mo + W/2	1 - 5	2 - 4 (#8)	2.5 - 3.5 (#27)	(0.75 - 4.5) [†]
Nb	≥ 0.3	0.3 - 1.0 (#10)	0.3 - 0.7 (#29)	0 - 0.5
(V + Nb/2 + Ti)	0 - 1.5			(0.2 - 1.25) [†]
Si	0.1 - 0.5			0.2 - 2.0
Co	traces - 2.0			silent
S	traces - 0.1			0 - 0.025
Fe + impurities	balance			balance

[‡] The numbers in parentheses indicate the number of the dependent claim.

[†] These ranges were calculated by taking the lowest and highest boundaries of the individual elements (i.e., Mo, W, V, Nb, Ti=0) and incorporating them into the formulae provided in the claim.

The overlap between the ranges taught in the prior art and recited in the claims are sufficient to establish a *prima facie* case of obviousness (MPEP § 2144.05).

Still regarding claims 1, 3-8, 10, 22-27, and 29, Stein et al. is silent as to the presence of cobalt in the alloy. Koga et al., drawn to a substantially similar nitrogen-containing stainless steel alloy, teach that cobalt is beneficial because it increases the solid solubility of nitrogen and brings about a desired hardness of the alloy (para. [0045]). In order to achieve these effects, cobalt must be present in an amount of 0.5-4.0 wt.% (para. [0044]), which overlaps the claimed range. Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated cobalt into the alloy of Stein et al. for the purpose of improving the solubility of nitrogen and providing greater control over hardness of the steel, as taught by Koga et al.

Regarding claim 9, Stein et al. teach that vanadium is present in amounts ranging from 0.2 wt.% to 1.0 wt.% (abstract), which overlaps the claimed values.

Regarding claim 28, Stein et al. do not teach a vanadium content that encompasses the claimed value. However, it has been well established that discovering an optimum value of a result-effective variable involves only routine skill in the art (MPEP § 2144.05 Section II). In the instant case, vanadium is a result-effective variable because it directly affects the corrosion resistance and fatigue strength of steel, as taught by Koga et al. (para. [0046]-[0047]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have optimized the amount of vanadium in order to achieve a desired level of corrosion resistance and fatigue strength.

Regarding claims 2, 12, and 31, Stein et al. in view of Koga et al. teach a hardness of at least 40 HRC (Stein et al., page 1, para. 1), which overlaps the claimed ranges, but they do not teach a nitrogen martensitic phase comprising 3-6 volume percent of the alloy and residual austenite. However, these properties appear to be due to the processing limitations set forth in the claim. It is noted that the alloy composition has been found obvious in view of the prior art cited; therefore, any properties claimed as a result of processing steps performed on the known alloy would be expected to be necessarily present in the alloy.

Regarding claims 15 and 32, Stein et al. in view of Koga et al. do not teach the claimed hardness. However, this property appears to be due to the processing limitations set forth in the claim. It is noted that the alloy composition has been found obvious in view of the prior art cited; therefore, any properties claimed as a result of

processing steps performed on the known alloy would be expected to be necessarily present in the alloy.

Regarding claims 2, 11, 12, 15, 16, and 30-32, the claims recite processing limitations, thereby rendering the claims product-by-process claims. It has been established that the patentability of product-by-process claims rests on the product itself and not on its method of preparation. Thus, if the prior art anticipates or renders the product obvious, the claim is patentable regardless of the method of producing the product recited in the claim.

Regarding claims 33-37, high-chromium, nitrogen-containing stainless steels may be manufactured into blades (knives, manual knives); screws (encompasses all screws); and dies (tools) (Koga et al., para. [0003]). Additionally, Stein et al. teach that such steels may be manufactured into screws and other tools for use in the production of injection molds as well as for the processing of plastics and metals (page 4). It should be noted that phrases such as "for plastics" (claim 35) and "for cutting paper based laminated products for food and beverages" (claim 36) are classified as intended use of the tools, and will therefore not be accorded any weight in determining the patentability of the claim.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Velasquez whose telephone number is 571-270-3587. The examiner can normally be reached on Monday-Friday 9:00 AM-6:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached at 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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